

choosing where and how much to invest, and what technologies to use. Some of this investment is sunk, and cannot be fully recouped upon exit. In the second stage, the firms who have entered in the first stage compete with one another on the basis of price, quality, customer service, and so on. Since the entry decision is based on expected profits, it will depend on the competitive conditions the firm expects to face in the second stage. Therefore, any regulatory restrictions that constrain the competitive situation in the second stage will affect the entry decisions in the first stage.

As the *SFNPRM* acknowledges, asymmetric regulation of the LECs will send incorrect price signals and encourage uneconomic entry. The *SFNPRM* seeks, correctly, to minimize this distortion by eliminating features of its baseline regulation which contribute to price distortions, but which are not necessary to protect consumers. While some baseline price cap regulation may be needed to constrain LECs in markets where competition cannot yet do so, entry decisions made on the basis of such regulation will be distorted. The best solution to this problem is for the Commission to adopt clear rules in advance which spell out how regulation will change when entry does occur. If participants – both incumbent LEC and potential entrants – can predict with some confidence how regulation will be relaxed in the second stage of Schankerman's game, then the distortion of entry decisions caused by the need to maintain price cap regulation in the first stage will be minimized.⁶⁶

⁶⁶ ALTS claims (at 11) that competitors cannot be "lured" into making incorrect entry decisions. However, if the Commission does not establish a clear framework for streamlining, and instead examines changes in access markets on an ad hoc basis over time, then each firm will be uncertain as to how, or when, the Commission will reduce its regulation in each market. The comments in this proceeding make it clear that many parties have an interest in maintaining pricing umbrellas as long as possible.

Such an adaptive framework cannot be "premature," as some parties have suggested. Streamlining would only be granted when the criteria established by the Commission had been satisfied. In markets where this has already occurred, adoption of the framework would provide immediate benefit in terms of more effective competition. In markets which have not yet met the criteria, no harm can be done, since streamlining would not occur. Nonetheless, adoption of the framework will send more accurate price signals to all participants, encouraging efficient levels of investment by new entrants and LECs. If the Commission defers action, both of these benefits will be lost. In fact, the Commission has already waited too long, since considerable investment has already been made in many access markets.

Another important consideration is the fact that access markets, because they are localized geographically, are more numerous than long distance markets. As the Commission itself has noted in the past, competition in these markets is also likely to develop more rapidly than it did in the long distance market. It will, therefore, be necessary to evaluate more markets, over a shorter period, than the Commission did previously in its assessment of AT&T. If the Commission attempts to deal with these markets on an ad hoc basis, in separate proceedings, it will face a heavy administrative burden, and will find it difficult to make its decisions in a timely manner. By adopting clear rules for an adaptive framework now, the Commission will equip itself to deal with this transition in a more efficient manner, and avoid the need for repeated proceedings.

B. The Commission should define the geographic dimension of relevant markets by establishing reasonable guidelines for grouping wire center serving areas.

The *SFNPRM* (at ¶120) suggests that the current density pricing zones could be used as the relevant markets for purposes of applying criteria for streamlining. GTE

argued (at 48-52) that while a definition based on wire centers was reasonable, the current zones do not represent useful groupings of wire centers for this purpose.⁶⁷ GTE proposed instead that LECs should group wire centers into relevant markets based on simple guidelines. The wire centers in each group would be required to be contiguous, and some part of each wire center would have to be included in an addressable "footprint".

Most commenters agreed with GTE that the current density zones do not represent a useful basis for defining relevant markets.⁶⁸ AT&T (at 14 and Bernheim Appendix A at 7) argues that the geographic market should be defined narrowly, since access customers in one area have only a limited ability to substitute access services from another area. GTE agrees generally that LEC access markets are limited geographically; however, the size of the relevant area will vary greatly from one area to another. The Commission must develop a market definition that accommodates these differences, yet is also simple enough to administer.

Bernheim explains (at 10) that if the area defined as the relevant market is too large, and if the LEC is able to make a competitive showing for the entire area, LEC customers in the portion of the market area where alternatives were not actually

⁶⁷ Nor should the Commission attempt to re-draw the zones to produce more reasonable relevant markets. This would compromise the usefulness of the zones for their original purpose of capturing differences in density.

⁶⁸ See, for example, AT&T at 13-14, SWB at 56-58, Time Warner at 49. SWB provides (at Attachment D) maps of its zones in Missouri, showing that zones are both too large and too small. The area in St. Louis where competition is prevalent includes wire centers from all three zones. But each of those zones also includes areas in other parts of the state where little competition exists, and which are clearly too far from St. Louis to permit alternative supply to be substituted within the area.

available could lose necessary price cap protection. GTE agrees; this is why proposals from some commenters to adopt large standard areas, such as LATAs (Cox at 4, Time Warner at 49) should not be adopted. A further disadvantage of a large area is that, if the LEC is *not* able to satisfy the Commission's criteria for the entire area, it would be unable to respond to competition in the portion of the area that was competitive.

However, if the defined area is smaller than the actual market, the LEC would not, based on a single showing, be able to respond to competition throughout the relevant market. Further, very small standard units would require the LECs to submit many showings. As the *SFNPRM* notes, this would create an administrative burden for the Commission. In general, the relevant market cannot be smaller than the competitive "footprint" – the area in which alternative sources of supply are available.⁶⁹ The size of the area where customers can obtain alternative supply is limited not so much by an individual customer's ability to purchase access in one location and use it in another, as AT&T suggests (at 14), but by the geographic reach of the competitors serving an area. If the competitor will supply access at a customer's location, the customer does not have to "import" access from another point within the market.

GTE submits that the objective in defining a relevant geographic market should be to distinguish areas which are competitive from those which are not.⁷⁰ Rather than

⁶⁹ Bernheim mistakenly suggests (at 7) that a customer as close as a block away from a CAP fiber backbone would not be able to obtain service from the CAP. This ignores the fact that the CAP can extend a link from its backbone to reach the customer. GTE (at 68) proposes that the competitive footprint be based on carriers' own reporting of the areas in which they provide service.

⁷⁰ MCI claims (at 32) that: "If the LECs are allowed pricing flexibility in only those wire centers where they face competitors, they will be able to fund these decreases by raising rates in other wire centers where they do not face competition." MCI is wrong. By excluding less competitive wire centers from the

define an arbitrary area, such as a LATA or a zone, the Commission should adopt a flexible approach which seeks to include areas that are likely to be competitive, and exclude those which are not. GTE's proposal would accomplish this by defining the market area as a group of contiguous wire centers touched by a competitive footprint. This approach is based on the smallest practical geographic unit, the wire center. It assembles those wire centers in which at least some competitive supply is available; this provides assurance that the resulting area will not be too large.⁷¹ By allowing the LEC to group wire centers, it assures that the area will not be too small, and reduces the number of relevant markets to a level that the Commission can reasonably administer. Because the approach is flexible, it would allow a relevant market to be as small as a single wire center, and as large as a LATA – so long as the guidelines for grouping wire centers are met.

C. Relevant markets should be based on a combination of the geographic, service and customer dimensions.

GTE argued (at 57) that relevant markets should be defined on the basis of three dimensions: geographic, service and customer. A relevant market would comprise a logical grouping of substitutable services provided to a given customer set in a given geographic area.

relevant area, the Commission would leave them under price caps, which would prevent the LECs from raising rates in those wire centers to fund rate reductions.

⁷¹ Bernheim (at 9-10) suggests that the problem of using a larger area could be mitigated by requiring the LEC to charge uniform rates across the area. See also, Time Warner at 44. Unfortunately, this requirement would also raise the cost to the LEC of responding to competition in the relevant market, since it would also have to reduce its price in the rest of the large area. This is precisely the problem with the current study area averaging requirement. Since GTE's proposal would protect against defining too large an area, it would obviate the need for a uniformity requirement.

GTE noted (at 55-56) that the opportunities for substitution among access services depend, in part, on the characteristics of the end-user location to which access is being provided. For a large end user, a direct connection to an interexchange carrier would allow LEC switched access to be replaced by a combination of special access (from the LEC, a CAP or another vendor) and switching (at the IXC's POP, or by another access provider).⁷² Further, alternative supply may be available to large customers in a given area, but not to small customers. Bernheim agrees with GTE on these points. He recognizes (at 4) that "competition might develop in the provision of switching services to large customers, but not in the provision of these same services to small customers." With regard to service substitution, he points out (at 5):

The proposed approach fails to capture the possibility of customer substitution towards technologies that do not require directly comparable service components. Imagine that a final service, A, requires the use of an intermediate service that is supplied by a single vendor. The vendor is an apparent monopolist — entry is blockaded, so that no other firm can produce the intermediate service. Although one might be tempted to conclude that the vendor of the intermediate service has market power, this conclusion is premature. It is possible that there is some other final service, B, that provides a close substitute for service A, and that makes no use of anything even remotely similar to the monopolized intermediate service. In that case, the availability of service B may provide an effective check on the exercise of market power over service A. If so, it also provides an effective check on the exercise of market power over the intermediate service in question.

⁷² See also Schmalensee and Taylor, Pricing Flexibility for Interstate Carrier Access Services, ("Schmalensee and Taylor II"), attachment to USTA Comments at 23: "By the Merger Guidelines market definition method, then, customers having sufficient volume to support dedicated access services should be treated as a separate market from small customers (those with low volumes of traffic)

In this case, a service arrangement based on a combination of CAP transport and IXC switching can provide a service B which is substitutable for that provided using LEC switched access, even though the alternative access provider may not offer a service which is exactly like LEC switched access. Nonetheless, the availability of arrangement B effectively checks the exercise of market power over LEC switched access, the intermediate input to arrangement A.

Because such substitution among service arrangements is possible, GTE recommends that relevant markets be defined in terms of the logical groupings of services which can be used in these service arrangements. (GTE at 57-61) However, because large customers may have different opportunities to substitute alternative service arrangements than small customers do, it may be necessary to place the logical grouping of services provided to large customers in a separate relevant market from the services provided to small customers.

Bernheim also argues (at 5) that the relevant market should include all intermediate services in the "vertical chain", as well as all of the final services that use the intermediate services. This is clearly not correct. First, the final services, such as toll, are not substitutable for the access services in question. Second, the LECs do not have market power for most of the final services, such as interLATA services, and are not even allowed to provide them today. Third, as Bernheim himself demonstrates, if an alternative supply is available which does not depend on the LEC at any point in the vertical chain, the LEC cannot exercise market power. This would be the case if a relevant market met the addressability standard proposed by GTE, based on the availability of service from facilities-based providers.

Finally, Bernheim does not demonstrate how, even if the LEC had market power over some services, it could acquire market power over final services that use its interstate access services at some point in the vertical chain. The Commission's policy on expanded interconnection, as well as the nature of interstate access services, makes this unlikely.⁷³ In fact, Bernheim is unable to provide a plausible example of how this would occur. He suggests (at 20) that if switching became competitive, the LEC could exploit its market power over loops by degrading the quality of complementary loops through discriminatory interconnection, and then by raising the price of its switching. However, the Commission has already established its rules concerning expanded interconnection, which provide for added regulatory scrutiny of expanded interconnection rates and terms. These rates, which are already out of price caps, would not be affected by the streamlining proposed in the *SFNPRM*. Further, once interconnected, competitors purchase the same access services, at the same tariffed rates, as do other customers. There is, thus, no opportunity for LECs to manipulate rates for loops and switching in such a way as to discriminate against interconnectors.⁷⁴

Time Warner suggests (at 42) that the Commission's definition of relevant markets should be based on the extent of the market the LEC serves with common or shared facilities. Neither the LEC's ability to sustain a price increase in the market, nor a customer's ability to substitute alternative services, depends in any way on the

73 Schankerman (at 10) explains that contestability of product markets makes predation ineffective, even if there is market power over facilities, provided interconnection is available.

74 As explained *supra*, interstate switched access is structured in such a way that the rate access customers pay for "loops", the CCL, is applied to the same demand units as the rate for local switching.

"jointness" of the LEC's production technology.⁷⁵ Therefore, the nature of the LEC's production should not be a factor in defining relevant markets.

D. The Commission should establish simple competitive criteria, based on supply and demand responsiveness.

There was broad support from commenters concerning the use of measures of supply and demand elasticity as criteria for streamlining. However, some parties recommended that the Commission must rely on market share as an indicator of demand responsiveness. As GTE suggested (at 70-71), once the availability of alternative supply has been shown, the purpose of the demand responsiveness showing should be to demonstrate that the customers regard the alternative services as substitutes for LEC services. This should not require a showing that a particular market share has been lost. The *SFNPRM* does not contemplate such a requirement, noting (at ¶143) that a high market share does not necessarily confer market power.

Yet several commenters who have opposed the use of market share measures in their own markets have advocated their application here. AT&T, which has argued strenuously over the years that market share has no relevance to the determination of market power, in these comments (at 17) recommends that a strict market share criterion be established for streamlining of LEC access markets.⁷⁶ AT&T goes farther,

⁷⁵ Neither is the LEC's ability to cross-subsidize dependent on the degree of "jointness" in production, as Time Warner claims. Nothing about joint production would confer on the LEC the ability to raise one price as a consequence of reducing another. These access prices would be controlled either by the Commission's price caps, or by the availability of alternative supply, neither of which depends on the degree of shared costs in the LEC's production.

⁷⁶ See AT&T Comments, International Competitive Carrier, CC Docket No. 85-107, filed February 24, 1986 at 4, n.6.

advocating a market share standard that is higher than that used in other markets. AT&T does not explain why relative capacity, as recommended by the Merger Guidelines in markets with the characteristics of interstate access, should not be used instead of relative quantities sold.⁷⁷

Similarly, NCTA demonstrates multiple personalities with respect to the use of market share. When discussing the streamlining of LEC access markets, NCTA (at 30) recommends that the Commission should examine market share. Yet when discussing the application of competitive criteria to its constituent's own services, in its recent comments on the possible waiver of the Commission's cable rules for services in Dover Township, New Jersey, NCTA was at pains to emphasize that relative capacity, and not market share, should be considered.⁷⁸ Going further, NCTA also explains that effective competition can be provided by competitors with small or zero market shares, and proposes that the Commission should give strong weight to potential competition from firms who could expand their capacity in response to a price increase.⁷⁹ NCTA also suggests that cable firms should be deregulated as soon as a competitor is authorized to provide service, even if no competitive service has actually been offered.

The *SFNPRM* noted (at n.207) that the measure of supply elasticity should include potential capacity that could readily be added by competitors in response to a

⁷⁷ For a discussion of the Guidelines and their application, see Schmalensee and Taylor II at 24-25. For a discussion of an addressability test as the practical way of measuring relative capacity, see GTE Comments at 64-69.

⁷⁸ See NCTA Comments in the matter of Waiver of the Commission's Rules Regulating Rates For Cable Services, CUID Nos. NJ0213 and NJ0160, December 13, 1995 at 13. ("NCTA Dover").

⁷⁹ NCTA Dover, Attachment by Economists Incorporated at 1-5.

price increase. GTE (at 69-70) explains how a properly constructed addressability measure would capture some, but not all, potential capacity. GTE's proposal is thus somewhat more conservative than that of NCTA in its "Dr. Jekyll" mode.

Several parties argue that the criteria for streamlining should disregard any competitive supply which relies on resale of LEC facilities.⁸⁰ GTE has, in its presentation of the addressability measure, emphasized the examination of facilities-based competitors. As GTE has noted *supra*, many markets in GTE's serving area would meet a reasonable test for streamlining today, using a measure based solely on facilities-based alternative supply.

How then does resale of LEC facilities enter into an addressability measure? GTE believes that the issue is not whether resale should be counted, but rather how the criteria should be applied. If the alternative supply which is used to develop the addressability measure is facilities-based, then customers will have choices which do not depend on the use of LEC facilities. As several commenters have recognized, the issue of a vertical price squeeze is then moot, since the LEC would not control any facility the competitors need to reach their customers.⁸¹

⁸⁰ See, e.g., Sprint at 24, AT&T at 17.

⁸¹ Note that the situation in a given relevant market may be more complex. There may be one or more firms competing on a facilities basis; however these firms may choose to employ LEC services to reach some customers in an area. GTE submits that if competitor's facilities have been deployed extensively within a market area which is limited geographically, then the LEC would not be able to use a price squeeze successfully. If the LEC tried to raise the prices of services purchased by competitors (even assuming that it could discriminate between competitors and its own customers) it would simply induce the competitors to extend their own networks within the limited geographic area more quickly.

Alternatively, depending on circumstances in the relevant market, the LEC may choose to construct an addressability measure which relies in part on competitors who resell LEC facilities. This source of supply is very real, and there is no reason why it could not be included.⁸² However, some additional standards would have to be applied to such a showing. First, the unbundled offering which competitors purchased would have to be structured in such a way that the reseller, rather than the LEC, assessed the interstate access charges for which the relevant market is defined. If this condition were met, then the availability of the service to the end-user from the reseller would discipline the LEC's pricing of those access elements. Second, the issue of a vertical price squeeze would now become relevant, since the reseller would be dependent on the LEC for a portion of the facility. This issue could be addressed by having the LEC demonstrate that it had complied with state requirements concerning the availability and pricing of an unbundled loop offering.

E. Relevant LEC markets found subject to competition should be removed from price caps and made subject to streamlined regulation.

GTE agrees with the tentative conclusions in the *SFNPRM*, that a regulatory framework be adopted to remove certain LEC services in specific markets found to be competitive from price cap regulation. GTE urges the Commission to adopt administratively efficient procedures to examine competitive market showings. As markets are evaluated by the Commission over time, LECs could be required to submit or

⁸² The fact that resale does not add to the total market supply, which some parties point out, is not relevant here. What is relevant is whether the competitor can add capacity as needed to take a significant portion of the demand away from the incumbent in response to a price increase. The competitor can do this if it has access to the incumbent's entire capacity through resale.

update a "market classification plan" which would identify all markets subject to baseline, streamlined and nondominant regulation. A filing to have a market declared nondominant would take the form of a revision to the LEC's market classification plan, to be submitted on 30 days' notice.

Once under streamlined regulation, LEC tariff filings should be afforded the same treatment as all other services which have been subject to streamlined regulation: filing on 14 days' notice with a presumption of lawfulness. Further, LECs should not be restricted in the type of tariffs filed, *i.e.*, contract or general offering.

Despite arguments to the contrary, there is no harm in the Commission adopting such a framework now. Criteria to be used to qualify LEC services for streamlined regulation should be simple to administer and predictable in outcome. The proposals set forth in GTE's Comments meet these objectives: the determination of the relevant market based on a logical grouping of wire centers and the competitive criteria based on measures of supply and demand responsiveness.

V. THE COMMISSION SHOULD ESTABLISH A FRAMEWORK FOR DESIGNATING LECS AS NONDOMINANT WHEN THEY LACK MARKET POWER.

Most LEC competitors commenting in this proceeding oppose the adoption of any criteria to classify LEC services as nondominant under the assumption that no LEC will become nondominant in the near future for any service category or geographical area.⁸³ Again, as with the adoption of criteria for streamlined regulation, there is no harm in developing the standards to determine when a LEC no longer has market power. The Commission should not prejudge whether any particular access market would meet

⁸³ MCI at 36, TRA at 39, NCTA at 29.

conditions under which nondominant treatment may be appropriate within some undefined "near future." It is conceivable that a LEC could make a convincing showing that it has little or no market power in certain markets today, such as interstate intraLATA MTS or video dialtone services. By establishing these criteria now, all market participants will know the ground rules that the Commission will apply in making such a determination.

GTE urges the Commission to adopt standards for applying nondominant regulation to LEC services. GTE suggests that, as a basis for this rulemaking proceeding, the Commission should conclude that a LEC is nondominant in any new market it enters outside its traditional serving area, that a framework for determining nondominance be based on the framework adopted for streamlining, and that any LEC found to be nondominant in a given market should be regulated in the same manner as any other nondominant carrier with which it must compete.⁸⁴

VI. CONCLUSION

GTE urges the Commission to move forward with its "procompetitive agenda" and adopt change in baseline price cap regulation without regard to the actual level of competition present. The proposals set forth by the Commission for baseline changes in the price cap plan, as modified by GTE's suggestions, provide a reasonable framework for adapting price cap regulation to the *emergence* of competition.

Because there is a critical need for immediate new services flexibility, GTE strongly supports the Commission's efforts to adopt changes to the new services rules, to eliminate the need for LECs to seek a waiver of Part 69, to adopt separate tariff standards for Alternative Pricing Plans, to extend zone pricing to most access rate elements, to

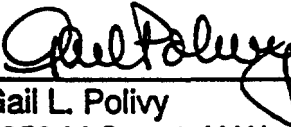
⁸⁴ See GTE Comments at 77-82.

allow LECs to employ contract-based tariffs, subject to appropriate safeguards, to remove limitations on downward pricing flexibility and to simplify the price cap basket structure. The Commission should also implement its proposed system of adaptive regulation for LEC interstate access services and establish the criteria to define relevant markets and the terms by which these markets can receive streamlined or nondominant treatment.

Respectfully submitted,

GTE Service Corporation on behalf of its
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Certificate of Service

I, Judy R. Quinlan, hereby certify that copies of the foregoing "Reply Comments of GTE" have been mailed by first class United States mail, postage prepaid, on the 16th day of January 1996, to all parties of record.



Judy R. Quinlan

APPENDIX H

3/4/96

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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OFFICE OF SECRETARY

In the Matter of

Price Cap Performance Review
for Local Exchange Carriers

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CC Docket No. 94-1

GTE's REPLY COMMENTS

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SUMMARY

GTE submits that a forecast based on historical data of the percent change in Local Exchange Carrier ("LEC" or "exchange carrier") input prices less LEC Total Factor Productivity ("TFP") is the most accurate method of determining the next-year's Price Cap Index ("PCI") adjustment factor. Christensen's simplified TFP model, placed on the record by USTA, accurately measures not only TFP, but produces an exchange carrier input price series that allows the Commission to directly measure the percent change in exchange carrier output price growth.

The Commission should accept Christensen's simplified TFP model for use in the price cap formula. This model addresses all valid concerns voiced by the Commission and other parties: (i) proprietary data has been eliminated; (ii) all the data used in the simplified TFP model is publicly available, auditable, and timely; and (iii) the US National Income and Products Accounts cost of capital — which includes both a debt and equity component — is now used in place of Moody's average yield on public utility bonds.

The Commission should reject suggestions shown by the record of this proceeding to be unwarranted, including the suggestions of Norsworthy (for AT&T) and ETI (for Ad Hoc) for creating PCIs that would have the market behave more like a rate-of-return monopoly than a competitive industry. Since the Commission intends that the PCI mimic competition in order to induce the firms in the industry to behave as they would under competitive price disciplines, the correct weights to apply to output growth in a TFP measure are revenue weights, not marginal cost weights. Similarly, since the Commission intends the market to behave as if it were ruled by competitive price disciplines, rather than by rate-of-return pricing disciplines, it is the opportunity cost of capital that should be used in a TFP study because this is the measure that a competitive market uses — not accounting return.

Replacing the opportunity cost of capital in a TFP study with accounting returns takes the price cap exchange carriers back to rate of return regulation. By the same token, using prescribed depreciation rates misses the Commission's stated goal of economically meaningful measures; and, once again, it does not reflect how a competitive market operates.

The argument for the use of hedonic indexes is futile and beside the point; a simple and generally accepted methodology does not exist. For use as part of a PCI adjustment factor, the decomposition of the productivity factor into hedonic components is an unnecessary complication because what is being sought is a measurement of overall effect. In other words, if this type of adjustment were applied, its employment would make a negligible difference because the industry indexes used by Christensen already incorporate its effects.

The Commission should accept Christensen as a recognized expert on productivity and price index construction. His methodology is widely accepted and used, and forms the basis of the commentary from all of the parties. Recommendations made by Dr. Selwyn and Dr. Norsworthy indicate that they are out-of-touch with the mainstream of research and methodology in the area of productivity measurement, resulting in issues being put in the wrong context. Norsworthy, in trying to discover how a monopoly would behave in a rate-of-return world, develops measures that would force exchange carriers back into the inefficient rate-of-return type of behavior the price cap methodology is designed to avoid.

It is time for the Commission to return to basics — a direct measure. The theoretically exact measure for the PCI adjustment factor is the percent change in growth of LEC input prices, measured as an economic cost share weighted average of input price growth, less the percent change in growth of exchange carrier TFP — measured, as would

be appropriate for a competitive market, by data for the firms extant in the market. By adopting this direct measure, the Commission would eliminate all the controversy over whether or not an input price differential should be incorporated into a price cap formula that: (i) is already too complex; and (ii) already contains approximations.

The input price series resulting from Christensen's TFP study has been accepted by the Commission as a valid measure of LEC input prices, and most parties agree with Christensen's number and the basic methodology that produced it. Under these circumstances, the Commission can eliminate the wait for all the economy-wide measures needed to employ the formula proposed in the *Fourth Notice*, and proceed immediately to use a direct measure — provided it eliminates the extreme volatility in the estimated output price series (the actual PCI) by appropriately forecasting or smoothing.

The best method of determining the next-year PCI adjustment factor is a time series forecast based on actually observed previous PCIs. Currently, sufficient data is not available to perform a satisfactorily complete time series analysis of the input-growth-less-TFP-growth series using Christensen's simplified model. Thus, GTE recommends that the Commission adopt a moving average until enough data becomes available to perform a time series forecast— that time to be determined based on the recommendations of such qualified experts as Dr. Christensen. Regardless of the resolution of the foregoing, the Commission must ensure that the price cap formula is not reduced to a piecemeal forecast of the components. This means the annual PCI adjustment factor should be calculated; then there should be a forecast or calculation of a moving average based on the annual factor, not based on individual components using different time periods. Adoption of a direct measure of the percent change in LEC input prices and the percent change in

exchange carrier TFP would not only eliminate the lag associated with a formula incorporating economy-wide measures; it would remove the ability to game the formula.

The Commission has correctly concluded that there is no economically meaningful way to divide and measure the facilities used for the provision of interstate services from those used for intrastate services. Having reached this conclusion, the Commission should disregard obstinate attempts to use arbitrary and uneconomical separation of the LECs' facilities in order to derive an interstate TFP. Admittedly, the parties holding out on this point cannot separate the inputs; so they attempt to rationalize the separation of outputs. For their methods to be valid, they must be able to separate both inputs and outputs in an economically meaningful way. The Commission — charged with the task of selecting the most appropriate method of determining an economical measure of TFP — should reject claims that doing so would exceed its authority. The PCIs were initialized based on rates established under jurisdictional separations. The selection of a method to adjust the PCIs is not a jurisdictional issue. The development of separate interstate and intrastate productivity components depends on the technical issue of whether the production is joint or non-joint, that is, whether or not the dual cost structure is additively separable. If production is joint, then the method proposed by Dr. Selwyn cannot be used, regardless of his plaint of jurisdictional requirements.

The Consumer Productivity Dividend ("CPD") should be eliminated. Parties that automatically assume that a CPD should be an integral part of the price cap formula present no evidence whatsoever that this so-called "stretch" factor is attainable by the LECs or that it leads to a competitive-like outcome. Further, the point of this entire proceeding is to establish a productivity factor that accurately reflects achievable gains and leads to something approximating a competitive pricing discipline. Imposing a CPD directly conflicts

with this objective. The measure proposed by GTE and the measure proposed by USTA are both legitimate estimates of price changes that would occur under competition. For that reason, these measures do not contain a CPD . To incorporate a CPD would take the Commission away from trying to provide mechanisms that give competitive-type incentives to the firms in the industry. Indeed, it would place the Commission in an anti-competitive role.

Similarly, sharing needs to be eliminated. The Commission itself recognizes that sharing blunts the efficiency incentives of price caps. Those parties that want sharing retained dwell on the earnings of the exchange carriers. In fact, LEC earnings are not excessive. Unadjusted LEC earnings are in line with firms deemed to be "competitive" and operating in the same industry. Further, if the LECs' earnings are recalculated in the same manner as these "competitive" firms calculate their earnings, the exchange carriers are significantly below not only these firms, but the rate of return sharing thresholds. To realize the declared purpose of price caps of providing incentives for greater efficiency, sharing must be eliminated.